

REMARKS

As set forth in these remarks, Applicants submit that the references identified by the Examiner do not show or suggest the features recited in the pending and amended claims and the claims comply with the requirements of 35 U.S.C. § 112. Reconsideration and withdrawal of the rejections and allowance of the application are respectfully requested.

I. Status of the Claims and Formal Matters

Claims 1-2, 4-13, and 17-25 are currently pending in this application with claim 1 being amended hereby.

It is submitted that the claims, as originally presented, are patentably distinct over the prior art cited by the Examiner, and that these claims were in full compliance with the requirements of 35 U.S.C. §112. Changes to these claims, as presented herein, are not made for the purpose of patentability within the meaning of 35 U.S.C. §101, §102, §103, or §112. Rather, these changes are made simply for clarification and to round out the scope of protection to which the Applicants are entitled.

II. Rejections Under 35 U.S.C. §112

In paragraphs 5-8 of the Office Action, the Examiner rejects claims 1-23 as being unpatentable under 35 U.S.C. § 112, first paragraph because the specification allegedly does not describe the feature of “an inverting routine that inverts the net price of each of the inverse complex orders” or of an “inverted price” sufficiently so as to convey to a person of ordinary skill in the field of the invention that the Applicants had possession of the claimed invention when the application was filed. Applicants respectfully disagree.

For example, at pages 43-44 of the specification, Applicants describe an embodiment of the invention where the “complex order process 50 prioritizes, sorts, and ranks the inverse complex orders to determine the best inverse complex order.” The complex order process “multiplies the net price of the first inverse complex order by -1 to create the calculated net price.” It is this calculated net price that is then used to determine if the inverse complex order can trade. Specification at 44-45. Applicants submit that at the very least, this portion of the specification demonstrates that the Applicants had possession of an “inverting routine” and an “inverted price” within the scope of the invention. Thus, these features recited in independent claims 1, 24, and 25 are patentable under 35 U.S.C. § 112, second paragraph, as are claims 2, 4-13, and 17-23 that depend from claim 1. The rejections set forth in paragraphs 7 and 8 should be withdrawn.

In paragraph 10 of the Office Action, the Examiner rejects claims 2, 4-13, and 17-25 under 35 U.S.C. § 112, second paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter that the Applicants regard as their invention. In paragraph 11, the Examiner alleges that the recitation of the word “if,” which appears near the end of claim 1, renders the preceding claim elements vague. Applicants respectfully disagree that the claims, as presented, are indefinite. However, in order to advance the prosecution of the Application, Applicants have amended claim 1 to delete the phrase “if such an inverse complex order is found.” Thus, any rejection of claim 1 as being indefinite, as well as the rejections of claims 2, 4-13, and 18-23 in this regard based on their dependence from claim 1 should be withdrawn.

In paragraph 12 of the Office Action, the Examiner alleges that claims 1, 24, and 25 are vague and indefinite because of the phrase “an inverting routine that inverts the net price of each of the inverse complex orders” and the recitation of “an inverted net price.” As discussed with respect to paragraphs 5-8 of the Office Action, the “inverted net price” can be understood in view of the embodiments disclosed at pages 43-45 of the Specification. The complex order process according to this embodiment seeks to match one complex order with another complex order that is “inverse,” that is, the other complex order has legs which, if matched against the first complex order would result in execution of that first complex order. To determine if the “inverse” complex order can trade, an inverted price is calculated. According to the embodiment at pages 43-45, such a calculation is made by multiplying the net price of the inverse complex order by -1. This embodiment is presented by way of example, and not limitation. In view of the specification, however, an ordinary skilled artisan would readily understand what is meant by the inverting routine and inverted net price recited in the claims. The rejections of claims 1, 24, and 25 should thus be withdrawn.

III. Rejections under 35 U.S.C. §102(b)

In paragraphs 15-28 of the Office Action, the Examiner rejects claims 1-2, 4, 6-8, 10-12, 14-15, 17-18, and 20-21 under 35 U.S.C. §102(b) as being anticipated by Wagner. The present invention includes:

- a synthetic pricing routine that calculates a synthetic high price and a synthetic low price for the at least one complex order;
- an inverting routine that inverts the net price of each of the inverse complex orders; and
- a sorting routine that sorts the inverse complex orders, determines an inverse complex order with the lowest inverted net price that is less than or equal to the synthetic

high price and greater than or equal to the synthetic low price, and matches the at least one complex order with the determined inverse complex order.

The Examiner asserts that the synthetic price routine is shown by Wagner in Figures 1, 6, and 9 and the related text. The Examiner also asserts that the routines for inverting an inverse complex order price, determining that the inverted price is less than or equal to the synthetic high and greater than or equal to the synthetic low is shown by Figures 1, 6, and 19 and related text and by the disclosure of Wagner at column 1, lines 5-13 and column 3, lines 53-58. Applicants respectfully disagree.

As discussed in Applicants' Amendment, dated March 23, 2009, Wagner describes a system for trading financial instruments, including straddles, but Wagner does not show or suggest matching according to an algorithm as recited by the claims. According to Wagner, participants enter bids and offers through a computer system and the system matches them automatically. (Wagner, col. 3, 30-37.) Wagner discloses that after signals communicating orders to a processor are received, the processor "compares all offers to bids and all bids to offers to see if the orders can be matched." (*Id.*, col. 10, lines 47-53.) But Wagner does not show or suggest an algorithm for matching straddles or other complex orders.

Instead, Wagner discloses a system that matches simple bids and offers. Wagner's disclosure of a central processor that "compares any bids with offers on a priority basis, finds a match and completes the execution of the transaction" does not show or suggest the sorting routine recited in the claim. (*See* Wagner, col. 1, lines 5-13). Instead, Wagner says only that bids and offers at an equal price are matched on a "first come, first served" basis. (*Id.*, col. 4, lines 3-5). Wagner does not show or suggest a comparison of the inverted net price of an inverted complex order with the synthetic price range of another complex order.

Likewise, Wagner's disclosure that orders can be displayed by size, price, volume and price differential and that Wagner "allows simultaneous spread trades (both in time and by commodity) to take place" does not show or suggest the matching algorithm according to the present invention. (*See* Wagner, col. 3, lines 53-58). Wagner does not describe any means for effecting "simultaneous spread trades." And Wagner does not suggest that such trades can be matched using the algorithm recited in the claims, i.e., by a comparison of inverted price with a synthetic price range.

Nor is there any suggestion in Figures 1, 6, 9, or 19 of the recited synthetic pricing, inverting, and sorting routines for matching a complex order with an inverse complex order recited in the claims. Figure 1 of Wagner shows a trading system with remote terminals, 18 and 20, and a central trading exchange 11. (Wagner col. 6, line 64- col. 7, line 11.) The central processor 13 of the central trading exchange shown in Fig. 1 provides "displays for simultaneously executing 'spread' trades." However, the text describing Fig. 1 does not disclose how spread trades are simultaneously executed. (*See* Wagner, col. 7, 12-39.) Instead, the text describes the first nine steps set forth in element 12 of Fig. 1 and concludes "[f]inally, it provides the necessary trade data for settlement and compliance with the rules of the exchange." (*Id.*, col. 7, lines 37-39.) There is no discussion of "spread" trades with respect to Figure 1.

With respect to Figure 6, Wagner describes how the central processor "can receive cancelation of orders, modification of orders or orders that can be executed." (Wagner, col. 11, lines 5-7.) A comparator determines if a particular order can be executed and if so, sends signals to the commodity file and day file if the execution occurred at a new high or low price. (*Id.*, col. 11, lines 7-21.) Wagner is silent how a "spread" trade might be processed by such a system.

Moreover, the claims recite matching of complex and inverse complex orders when the calculated price of the inverse complex order falls within the synthetic high and low prices of the complex order. There is nothing in Figure 6 of Wagner or the related text suggesting how to perform such a match.

Wagner's Figure 9 and related text likewise does not show or suggest the claimed invention. Figure 9 illustrates a "conditional order circuit." (Wagner, col. 13, lines 39-43.) "Conditional orders" include, among others, orders that are "fill or kill" and orders that are "spreads/straddles." (*Id.*, col. 13, lines 43-46.) When a conditional order, like a spread/straddle that is not "fill or kill" is received, the order is time stamped, stored in a master trade file, and processed as described in relation to Figure 8. (*Id.*, col. 13, line 65-col. 14, line 10.) There is no disclosure with respect to Figure 9 how a "spread/straddle" is executed.

Likewise, Figure 8, which receives conditional orders from the circuit shown in Figure 9, does not disclose how a spread/straddle is executed. Instead, Figure 8 and the related text disclose processing a "market order" (Wagner, col. 12, line 45-col. 13, line 7), a "modification order" (*Id.*, col. 13, lines 8-24), or a "cancellation order" (*Id.*, col. 13, lines 25-37). Market orders are "placed in an open order queue" and a comparator checks to see if they can be matched with existing open orders. Wagner, col. 12, lines 45-49. But none of this portion of Wagner shows or suggests a system for matching complex orders.

Figure 19 also does not show or suggest the synthetic pricing, inverting and sorting routines recited in the claims. Instead, the text accompanying Figure 19 describes a portable terminal. An order is entered via the portable terminal to buy or sell a commodity at a limit or

market price. Wagner, col. 20, lines 15-36. No complex order is discussed, nor are any routines for matching a complex order shown or suggested.

In order for a reference to anticipate a claim under 35 U.S.C. § 102, each element of the claim must be found explicitly or inherently in that reference. As discussed above, at the very least, the synthetic pricing, inverting, and sorting routines are wholly absent from Wagner and for at least that reason, Wagner cannot anticipate claim 1 or claims 2, 4, 6-8, 10-12, 14-15, 17-18, or 20-21 that depend from claim 1. For those same reasons, Wagner also does not render claim 1 and the claims depending from claim 1 obvious.

In addition, as discussed in Applicant's March 23 Amendment, claim 2 recites that "matching each leg of the at least one complex order is contingent on matching all of the legs of the complex order." Wagner discloses a video monitor that can display certain information including spread relationships or price differential information about contracts that "allows simultaneous spread trades." (Wagner, col. 3, lines 53-58.) In paragraph 17 of the Office Action the Examiner provides his interpretation of "simultaneous spread trades" as requiring execution of both legs of a spread. While the display of Wagner would permit an investor to enter orders for contracts for a long position and a short position at the same time, there is nothing in Wagner to suggest that matching orders to create one position is contingent on matching orders to create both positions, as recited in the claims. Thus, Wagner does not show or suggest the system recited in claim 2.

In addition, with respect to claim 10, the claim recites that "the processor is adapted to monitor the memory to determine if the at least one complex order can be matched on the occurrence of a market event." The Examiner relies on the disclosure in Wagner at column 11,

lines 7-21 for support in rejecting this claim. But, as discussed in Applicants' March 23 Amendment, Wagner does not show or suggest a system that determines whether a complex order can be matched when a market event occurs. Instead, Wagner shows only that price information is updated after a match and execution have taken place. Wagner states that "if comparator 144 finds that a match occurs with a particular order and an execution can occur, a signal is produced on connection 153 which is coupled to comparator 155 which determines whether or not there is a new high or new low price." (Wagner, col. 11, lines 7-12.) Wagner does not disclose a system where matching of a complex order is determined as a result of a market event, for example, a change in the BBO. For this additional reason, claim 10, as well as claims 11 and 12 that depend from claim 10 are also not shown or suggested by Wagner.

In addition, claim 21 recites a matching algorithm that is adapted to match a portion of each leg of the at least one complex order based on the ratio of the legs of the complex order. As also discussed in Applicants' March 23 Amendment, Wagner does not show or suggest this feature. While a "straddle" mentioned by Wagner does include legs in a ratio of 1:1, there is nothing in Wagner that requires the full size of each leg to be executed at one time. Instead, Wagner teaches that when only a portion of an order can be matched, the portion that is not matched is sent back to the order queue and reprocessed. (Wagner, col. 15, lines 48-55.) Wagner does not show or suggest that particular portions of an order are sent back to the order queue because execution of that portion would result an execution outside the ratio of a straddle. For this additional reason, claim 21 is also not shown or suggested by Wagner.

IV. Rejections Under 35 U.S.C. §103(a)

In paragraphs 29-33 of the Office Action, the Examiner rejects claims 23 and 25 under 35 U.S.C. §103(a) as being unpatentable over Wagner in combination with Bergenudd.

Claim 25 of the present application and claim 1, from which claim 23 depends, recite an algorithm that determines an inverse complex order that can be matched with a complex order by determining synthetic high and low prices for the complex order and sorting inverse complex orders to determine a matching inverse complex order with an inverted price within the synthetic price range. Claim 25 also recites that in the event an inverse complex order which can match in that price range is not found, the complex order is matched with one or more regular orders.

Wagner does not show or suggest a system where complex orders are matched according to such a matching algorithm. As set forth in paragraph 32 of the Office Action, the Examiner relies on Wagner's Figures 1, 6, and 9 to suggest the synthetic pricing routine and Figures 1, 6, and 19 as well as Wagner's disclosure of the processor and video monitor display in columns 1 and 3 to find the inventing and sorting routines. (Wagner, col. 19, line 61-col. 20, line 53).

As discussed above, Figures 1, 6, 9, and 19 and related text do not show or suggest the inverting, synthetic pricing, or sorting routines recited in the claim 1, and also recited in claim 25. Likewise, Wagner's disclosure of a central processor that matches orders on a first-come, first-served basis also does not show or suggest the pricing, inventing, and sorting routines recited in the claims. (*See* Wagner, col. 4, lines 305). And Wagner's disclosure at a display that "allows simultaneous spread trades" is silent as to how those trades are matched and executed. (*See* Wagner, col. 3, lines 53-58).

The addition of Bergenudd to Wagner also does not show or suggest the inverting, synthetic pricing, or sorting routines recited in the claims. Bergenudd discloses a method for determining a net price of a combination order by identifying two different prices for each leg of the combination order and allocating the total quantity for the leg between those two prices to achieve, as closely as possible, an optimum average price. (Bergenudd ¶¶ 19, 22, 23.) Bergenudd does not show or suggest a system that determines if a complex order can be matched against an inverse complex order using an algorithm that compares the net price of inverse complex orders against a synthetic price range of a complex order and, if no inverse complex order has a price within that range, matches the complex order against regular orders. For at least this reason, claims 23 and 25 are not shown or suggested by the cited references.

In paragraphs 33 and 34 of the Office Action, the Examiner rejects claim 5 under 35 U.S.C. §103(a) as being unpatentable over Wagner in combination with Anderson.

Claim 5 depends from claim 1. Wagner, read alone or in combination with Anderson does not show or suggest the invention, as recited in amended claim 1. For those very same reasons, claim 5 is also not shown or suggested by the cited references.

In paragraphs 35-37, the Examiner rejects claims 9 and 22 under 35 U.S.C. § 103(a) as being unpatentable over Wagner.

Claims 9 and 22 depend from claim 1, and for at least the reasons discussed above with respect to claim 1, they are not shown or suggested by Wagner.

Wagner also does not show or suggest that a synthetic price may be calculated based on best price information as recited in claim 9. As discussed in Applicants' March 23 Amendment, Wagner discloses that, when a match is made with a particular order, and that match results in a

new high or new low price, the price of that trade is communicated to the commodity file and day file. (Wagner, col. 11, lines 7-21.) Wagner does not suggest that price information received via an interface can be used to determine how to match complex orders with one another or to determine if an inverse complex order is within a synthetic price range for a complex order such that the orders can be matched. For at least this additional reason, Wagner does not show or suggest the invention recited in claim 9 and its dependent claim 22.

In addition, claim 22 recites “an obvious price error algorithm” that prevents a complex order from matching “if a price improvement by the determined inverse complex order is greater than an error prevention value.” Wagner discusses traditional exchanges where trading cards representing opposite sides of trades are matched and compared with a computer list to identify “out trades” and assure that trades are accurately transcribed. (Wagner, col. 2, lines 26-41.) Such a process does not show or suggest claim 22 at least because a difference in price between a buyer’s and seller’s card is not a “price improvement.” Instead, it is an “out trade” that prevents the exchange from reconciling the trade since the exchange cannot know which of the buyer’s or seller’s price was the price of the trade. Until the cards are reconciled, the exchange cannot know the size of any price improvement or if there has been a price improvement at all.

Also, the prior art system disclosed by Wagner would not prevent matching for a trade with a price improvement “greater than an error prevention value” as recited in the claim. Assuming a buyer and seller in the prior art system submitted cards that accurately reflected the trade, but the price resulted in a price improvement greater than the error prevention value, the traders’ cards would not have been identified as an “out trade” by the prior art system since the

cards and the computer list would match. For at least this additional reason, Wagner does not show or suggest the invention as recited in claim 22.

In paragraphs 38 and 39 the Examiner rejects claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of U.S. Patent No. 5,905,974 to Fraiser ("Fraiser").

Claim 13 depends from claim 1, and for at least the reasons discussed above with respect to claim 1, it is not shown or suggested by Wagner, alone or in combination with Fraiser.

In paragraphs 40 and 41 the Examiner rejects claim 19 under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of U.S. Patent No. 5,101,353 to Lupien ("Lupien").

Claim 19 depends from claims 1 and 9, and for at least the reasons discussed above with respect to claims 1 and 9, it is not shown or suggested by Wagner, alone or in combination with Lupien.

In paragraphs 42 and 43 the Examiner rejects claim 24 under 35 U.S.C. § 103(a) as being unpatentable over Wagner in view of Bergenudd and in further view of Minton.

The present invention is directed a system for matching complex orders with a matching algorithm that includes synthetic pricing, inverting, and sorting routines to identify an inverse complex order that can match with a complex order. As discussed with respect to claim 1, Wagner's disclosure that bids and offers can be matched on a priority basis and that a display may be provided that allows "simultaneous spread trades." But Wagner provides no disclosure how such a system could match complex orders much less match them according to the matching algorithm recited in the claims. Likewise, Figures 1, 6, 9, and 19 and the related text show how bids and offers can be matched but do not show or suggest the matching algorithm for matching complex orders. The addition of Bergenudd and Milton does not cure this defect.

As discussed above with respect to claim 25, Bergenudd discloses a method for determining a net price of a combination order that solves a problem that, because financial instruments are traded at discrete price intervals or “ticks” it is sometimes impossible to find prices for all legs of the order within the spread for each specific leg. (Bergenudd ¶¶ 6 and 7.) Bergenudd addresses this problem by identifying two different prices for each leg of the combination order and allocating the total quantity for the leg between those two prices to achieve, as closely as possible, an optimum average price. (Bergenudd ¶¶ 19, 22, 23.) Bergenudd does not show or suggest a system that determines if a complex order can be matched against an inverse complex order using an algorithm that compares the net price of inverse complex orders against a synthetic price range of a complex order and, if no inverse complex order has a price within that range, matches the complex order against regular orders.

Likewise, Minton does not show or suggest the invention, as recited in amended claim 24. Minton is directed to a system for matching buyers and sellers of securities without the need for a broker. (Minton, col. 1, lines 9-13.) Minton does not show or suggest a system for matching complex orders.

In addition, as set forth in Applicants’ March 23 Amendment, claim 24 recites that “the quantity of at least one leg of the complex order is a ratio of at least one other leg of the complex order, and wherein the quantities of the legs of the at least one complex order are matched against the plurality of regular orders in the same ratio.” None of the cited references show or suggest the matching of a complex order where, when legs of the order are matched against regular orders, the quantities of each leg match are in the same ration as the original complex order.

Wagner teaches that when only a portion of an order can be matched that portion that is not matched is sent back to the order queue and reprocessed. (Wagner, col. 15, lines 48-55.) Wagner does not show or suggest that particular portions of an order is sent back to the order queue because execution of that portion would be result an execution outside the ratio of an original complex order. For example, Wagner does not teach preventing full execution of one leg of a straddle, that otherwise is executable, because the other leg of the straddle is not also fully executed.

Likewise, Bergenudd and Minton do not suggest this feature. Bergenudd teaches that an approximation of an net price for a combination order can be determined by allocating the number of products a leg of a combination order between two different prices such that the average price of the leg comes as close to the optimal average price as possible. (Bergenudd ¶ 23.) Bergenudd says nothing about matching separate legs according a ratio. Minton is not directed to trading of complex orders and also does not show or suggest this feature.

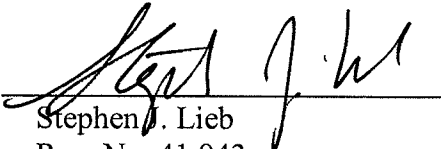
Accordingly, in view of the amendments made to the claims, as well as the above remarks, the Applicants believe the present application is in condition for allowance. Consideration of the above remarks, withdrawal of the Examiner's rejections, and issuance of a Notice of Allowance of the present application are earnestly solicited.

Statements appearing above with respect to the disclosures in the cited reference represent the present opinions of the Applicants' undersigned attorney and, in the event that the Examiner disagrees with any such opinions, it is respectfully requested that the Examiner specifically indicate those portions of the respective reference providing the basis for a contrary view.

Applicants authorize the Examiner to charge any additional fees and to credit any overpayments to Deposit Account No. 50-0320.

Respectfully submitted,

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